Thank you for purchasing our Robin.

Robin is an intelligent robot that balances automatically.

This user manual provides you with information about how to assemble and safely use the Robin, and how to maintain it. If you want to get the most pleasure out of your Robin, please read it carefully.

It is critical that you know of all safety notices and precautions before your first drive.

Robin

User Manual

This user manual applies to all robots named Robin that produced by Robstep.

To avoid losing control, collision or suffering a fall, we insist that all customers learn how to use Robin securely and safely before using.

This user manual provides all instructions and precautions necessary. It is strongly suggested that all consumers adhere to the instructions, otherwise the consumer will bear full responsibility for the consequences.We will not be liable for actions by consumers that fail to follow our guidelines .

More information about all agents can be found on our website: **www.robotsz.com.**

If you require further support information for our products please contact your local Robstep dealer.

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User Manual of Robin

1. Document overview

1.1 Document overview

Description with safety and warning information.
Introduction in Robin parts
Procedures to assemble Robin
Precautions for safe driving
Driving skills

1.2 User manual will help you assemble Robin correctly, and efficiently

Please read the user manual.

The DVD contains the security video tutorial and the User Manual in form of PDF. To avoid dangers, please make sure that you follow all instructions provided from the video.

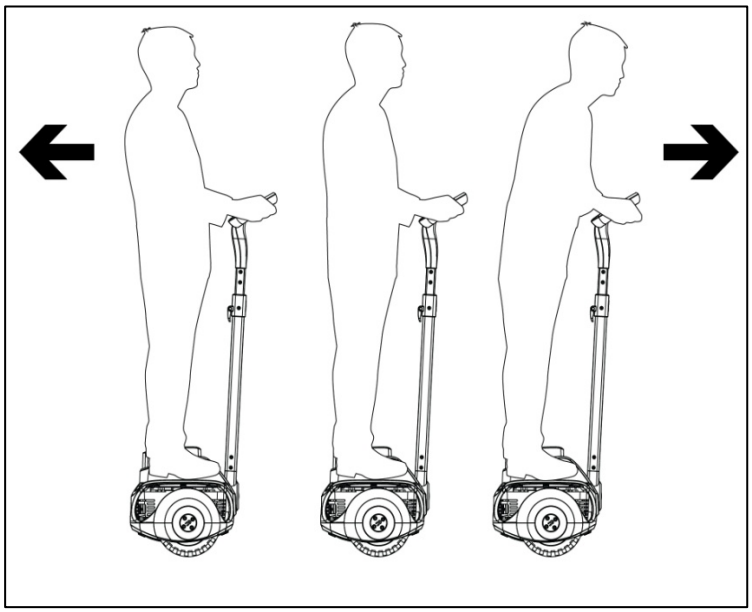
Please use the software named Adobe Reader to open the PDF document.

1.3 Related directions

Explanations provided below shall be applied to this whole user Manual only.

	Warning: Any false use could increase the risk of physical threats.
	Caution: Any misuse might cause system problems and even damage your Robin .
	Note : warnings that all users should be familiar with
	Indication that you can check information at certain pages in this user Manual.

2. Product introduction



2.1 Illustration about vehicle types

Robin is an intelligent robot developed by Robstep. Robin-M1 is the series of Robin of mini type which features small size, light weight, easy to carry, and flexible to control, etc. Keep Robin in the balance mood, you can control its speed and direction and go anywhere you like.

2.2 How to record the serial number

Each serial number of Robin is unique and exclusive. All consumers should record it in a safe location because it's of great importance and can be used for quality control, insurance claims, and identification purposes.

Locate the serial number under the pedal of the robin .

The serial number consists of eleven numbers, please ensure that you have it recorded and keep it safe.

2.3 How Robin works

Robin consists of main body, wheels, electric drive system, etc. Wheels with electric motor are fixed on the two sides of the main body while the power, the controlling circuit, the drive circuit, the sensor and the controlling switches are fixed on the main body.

The connection between the wheels and the main body is called the swing joint. The speed sensor and angle sensor work together to transmit information regarding the intersection angle of the wheels and the main body. Therefore, with the above actions and the software inside calculating the torque and the running speed so that the Robin can balance itself.

Robin is like a human body when moving, putting one foot in front of another and maintaining balance like walking.

When you slightly turn right the handle bar then Robin will turn right; slightly turn right the handle bar then Robin will turn right

Whenever you use the handlebar you should follow the direction.

3. Installation of Robin

In this part, we will talk about what parts Robin has and how we can assemble a Robin.

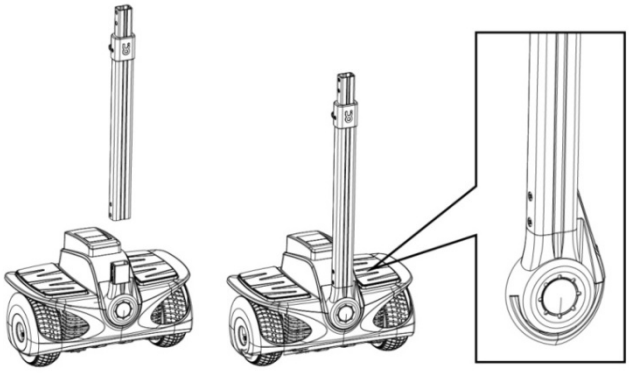
3.1 Checking the parts inside the packing

The parts of Robin are listed as follows, if any of them missing, please contact the local agent or us directly.

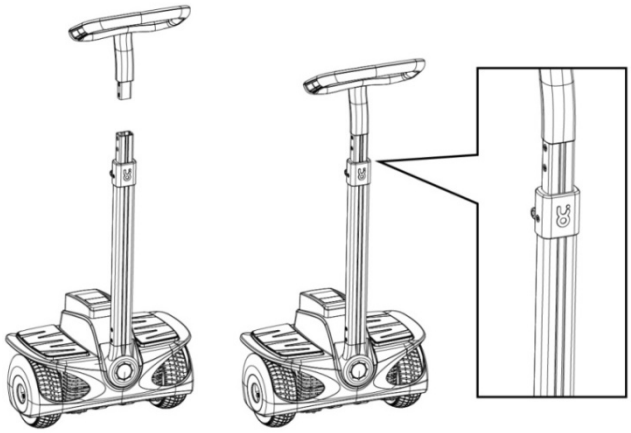
1、 Main body (1unit)
2、 Handlebar grip (1 unit)
3、 Handlebar stem (1 unit)
4、 Charger (1 pcs)
5、 Bag of screws (8pcs)
6、 Remote key (2pcs)
7、 User Manual (1 unit)
8、 Teaching DVD (1 unit)
9、 Screwdriver (1pcs)
10、 Universal adapter (1pcs)

3.2 Assembling Robin.

Step 1: put the handlebar stem into the adapter and tighten it up with 4 pieces of M5 screws as follows,



Step 2: put the handlebar grip into the adapter of the handlebar stem and tighten it up with 4 pieces of M5 screws as follows



Step 3: turn on the power at the rear of the main body of Robin，and use the wireless key to start..

WARNING!	● **Please ensure that the power is off when conducting any installation or maintenance of Robin.**

4. Controlling Robin and its display board information

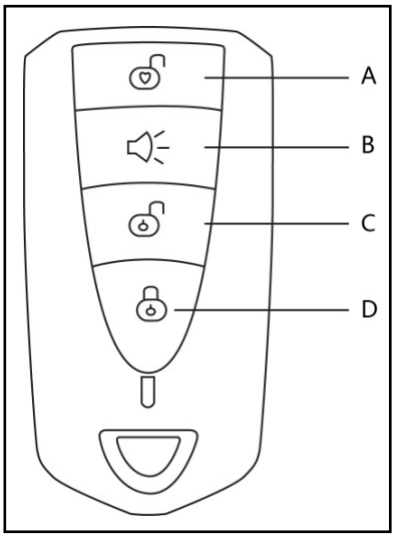
4.1 Remote control

You can remotely control a Robin if you are within about 30 feet of it.

The letter "**A**" stands for the **beginner mode**. Pressing this button so you can enter into the beginner mode whose speed limit within 7km per hour. (about 4 miles per hour)

The letter "**B**" stands for **warning and locking**. Pressing the button means that Robin can stay locked and notify you by vibrating if someone else attempt to move it. If you unlock it, just press it again. However, if you kept the Robin in this state for 24hours, it will turn off automatically.

The letter "**C**" stands for **normal mode**. You have to turn off the beginner mode when you want a normal mode. Turn it on so you can enter into the mode with speed limit within 15km per hour. (about 9 miles per hour)



The letter "**D**" stands for **shutdown**. Press the button and the Robin will power off.

Pressing button **A and C** within 5 seconds can enter **the mode of self-checking.** In the state of self-checking, you will hear a sound and see all five lights blink. The system will recover to the normal mode if there is no any problem. It will turn off automatically if there is something wrong, then you need to contact the local agent or contact us directly!

4.2 Pedal sensor

There are four sensors under the pedal, any of them stepped upon by users, Robin will enter the balance mode automatically.

WARNING!

- **Please don't put any objects on the pedals it will increase the possibility of collision and even damage Robin, and cause physical injuries to users.**

4.3 Display board

The display board of Robin is fixed on the top of the battery. It shows us information about Robin during driving.

A: electrical power display

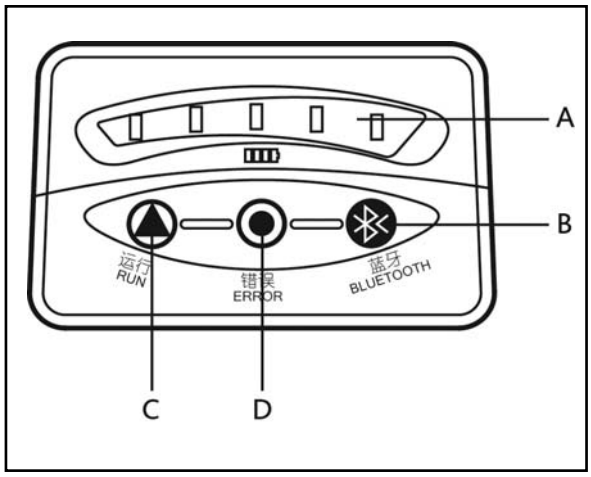
Normally, all five lights show brightly when the power is sufficient. But when it decreases gradually, the lights will be shut down from right to left. Five lights means Robin is fully charged, four means there is 60 % ~80% power left. Under the model of charging, five lights will flicker one by one, and when the charging is over, all of them will flicker at the same time.

B: indicator light of Bluetooth.

The Bluetooth light will turn on if you are successfully connected with a computer.

C: the green indicator light.

It will be blinking when it's in the open mode which means the system is open normally, otherwise, it will turn off indicate there is something wrong with the system.



D: the red indicator light.

When you see the indicator light turn red, that means the system goes wrong and you should seek help from the local agent or contact us directly.

5. Battery instruction

This part mainly describes how you can get the Robin charging at home, how to take good care of the battery, the precautions and specifications about the battery.

WARNING!

- **To protect your safety and maximize the service life of the battery, please operate the battery under the following instructions.**

5.1 Zero power

Please stop driving the Robin when you find all lights shut down. If you insist on driving, you may fall from Robin and get injuries and cause damage to the battery.

You should stop using the battery under any conditions listed follow:

1. The battery is broken.
2. Peculiar smell came out from Robin or it's overheated.
3. Any leaking material came from the Robin.

WARNING!

- **Don't touch the leaking material.**
- **Don't let children and animals touch the battery in case of any electric shocks injuries.**
- **Make sure that the power line is off the Robin before driving and don't do anything with Robin while it's charging.**
- **There are toxic substances inside the battery, so Don't be attempted to open it**
- **Only equipments provided by us can be used to charge Robin.**
- **Use of the battery on robin may be subject to local laws.**

5.2 Charging steps

- Open the charging port on the rear of the Robin.
- Make sure that the charging port is dry.

Plug one side into the charging port of Robin and the other side into the electric power source（100V~240V；60Hz）.

The red power light on the Robin will blink from left to right .When the red LED light on the charger adapter turns green, which means it is fully charged. Please stop charging because charging too long will damage the battery lifetime.

NOTE:

- Please use the standard plug of your country.
- Over charging or storing battery will damage the battery itself and have a negative impact on its usage.
- We suggest that the charging time should be three hours at a time.
- When Robin is turned off, it shows nothing on the display board .Red light on Charger turns green which means the power is fully charged.

WARNING!

- Keep the area clean and dry during charging.
- Don't put the plug into the charging port if you find it wet.

5.3 Overheating and slow operation at higher temperatures

In order to keep the efficiency operation high, please ensure that the temperature of the battery remains within certain ranges specified in the instructions. In case of overheat during driving, the system will make a safety warning.

Please keep the temperature in certain area before charging or during charging. The efficiency of operation will be best when the temperature is near the recommended temperature, otherwise it might lengthen the charging time or charge incorrectly.

5.4 Battery parameters

Model	Lithium battery (26cell)	Remarks
Charging time	Three hours	
Parameters		
Current and voltage	8 AH，DC48 V	
Weight	3.4kg	
Standard current and beginning volume	8mA，48V	
Size	165mmX145mmX 85mm	
Temperature scope		
Operating temperature	-15□~50□	
Charging temperature	-15□~50□	

Storage temperature	between-20□~ 25□ ， 12 months	
Storage relative humidity	5%~95%	

5.5 How to safely transport the batteries

WARNING!

- **Lithium battery is considered to be toxic material by most countries, make sure that you comply with all local laws.**

NOTE:

- **If you intend to transport the battery by airplane or any other types of shipping, please contact the local authorized agent or us for information about transportation of hazard material.**

6. Safely using Robin

Robstep Robot Co., Ltd hopes all users can drive Robin safely and enjoy it. Remembering that how you learn driving a car, skiing, all these experience can be applied to our products.

In accordance with the relevant content from "Product Manual "and "Safety videos", you can drive Robin safely. We strongly suggest you should read the "Product Manual " and "Safety videos" carefully when it is your first time to drive Robin .Please check whether the tyres are damaged or not, whether any components are loose or not before your driving every time. Any unusual condition, please contact agents to repair Robin

WARNING!

· **Please read "Product manual" and "Safety videos" carefully, from which you can get a lot of important safety information, including speed limit, vibration and safety shutdown, etc.**

. You must install every part reasonably before using Robin to avoid damaging Robin when using it, and avoid losing control , collision, falls and injuries

. You must charge Robin at least 3 hours. You can consult "Product Manual" to get the details about the assembly and charging method of Robin.

. Please don’t use Robin to do anything endangering personal and property

. Please don’t modify Robin’s components, which may affect the performance of Robin ， even damage Robin. Meanwhile it may cause other serious damage.

6.1 The weight limit of drivers

The reasons for weight limit are as follows:

Keep users' safety.

. Reduce the damage caused by overweight.

. The maximum load of driver: 100kg

. The minimum weight limit of driver: 35kg

- **You will fall down if overweight**

6.2 Maximum driving distance

The maximum driving distance is related to all kinds of factors, for example,

Terrain: The driving distance will be increased when driving on the smooth and flat surfaces.

Speed and driving style: maintaining moderate speed will increase driving distance. On the contrary, the frequent start and stop, acceleration and deceleration will reduce driving distance.

It will reduce the driving distance if the driver is very heavy.

Storing, charging and driving Robin in the recommended temperature will increases driving distance. On the contrary, it will reduce the driving distance in the extreme temperature.

Reasonable charging and maintaining battery will increase driving distance

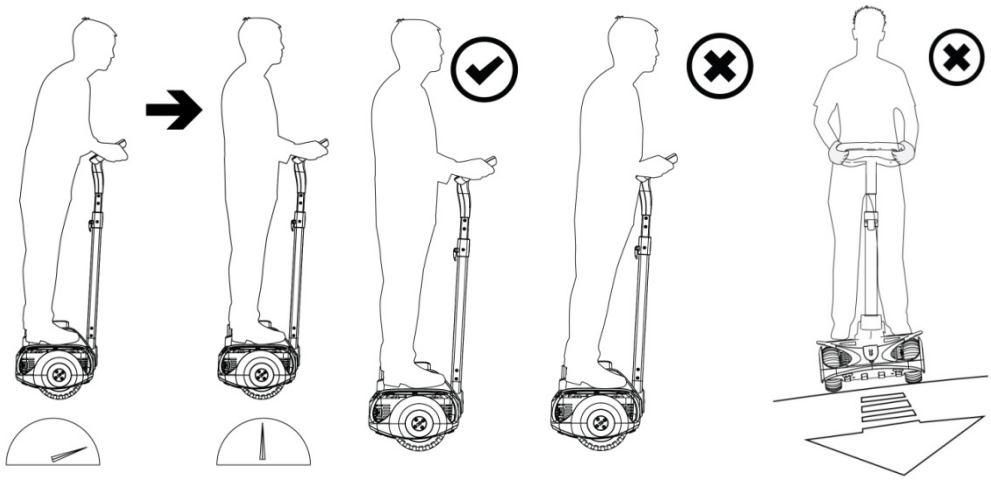
Downwind driving can increase driving distance, upwind driving will reduce driving distance.

6.3 Speed limit

The handlebar of Robin will lean to the drivers body when it approaching maximum allowable speed, which reminds you that you should decelerate. The buzzer will give out alarm sound when you back too fast

Robin can keep balance finely in the stipulated speed. The handlebar will lean to the user's body when its speed is more than the stipulated safe speed

Please keep some gap between your body and the handle.



NOTE: **Please don't drive on the transverse slopes or turn, which will lead to the balance angle of Robin shift.**

6.4 Vibration warning

Robin will give the users warning by vibration in the following situations.(1)locking Robin alarm.(2)backward overspeed (3)the users try to get on Robin when charging . Please stop using Robin immediately and get down from Robin when it strongly vibrates in the driving process, and don't try to drive Robin when it is vibrating.

WARNING! **Robin can keep balance for one second itself after the user gets off of it. So please cut off the power supply first, then let your hands go.**

7. Learn how to drive Robin

You need to note some related safety matters when driving Robin. Therefore, you must fully understand the all safety matters mentioned in the "Product Manual" before driving Robin. It is very important for you to understand these safety matters.

7.1 Start Robin

Start instructions:

If it is the first start, please press the button of Robin's back cover, all 8 lights on Robin will all blink for about 2seconds,then use the wireless key to start.

For anti-theft purpose, you can only start Robin with the back cover on/off button and the wireless key using together after 18hrs unused !

7.2 Safe Parking

When there is an incorrect operation or the battery power consumption to a minimum in the normal driving, the system will generate a secure parking information, meanwhile Robin will have a high-frequency vibration, then Robin can automatically slow to a stop.

- **Please don't continue to drive Robin when the battery power is exhausted or the system gives information of stopping, otherwise the user will get injured because of power shortages causing loss of balance.**
- **Please don't continue to drive Robin when it shows the minimum battery power, which will affect the battery life and capacity.**

7.3 Driving steps:

Step 1: Starting Robin as Chapter 7.1

Step 2: Pre-commissioning on the Robin.

There are four sensors under the pads, which can sense whether the user is on the Robin or not. According to the tilt relation between the Robin and user, there are two situations: (1) Robin tilts too much, the user puts one foot on the pad at this time, then Robin will shake to tell the user the tilt angle is too large, please don't get on Robin;(2) Robin tilts to little, the user puts one foot on the pad at this time, Robin can quickly and automatically balance to the vertical posture after the sensors sense the user. The buzzer gives out "drip" sound, which indicates that the system has entered the manned work mode.

Step 3 Get on Robin, control Robin forward and backward

Put one foot on Robin gently first, then the other foot. The user keeps the balance of body gravity when standing on Robin, which can make Robin motionless. Lean user body gently forward or backward to make Robin forward or backward, please remember to make small changes not rapid ones.

Step 4: Control Robin turn left or right

Lean the handlebar left or right to make Robin turn left or right.

Step 5: Get off Robin

Keep Robin motionless and balanced before getting off .Get off one foot first, then another one.

Please don’t shake the handlebar violently, which can Increase the probability of an accident,just gently lean the handlebar to turn .Please try to keep Robin balanced when getting off it.

7.4 Driving practice

When you want to drive Robin outside, for your safety, please make sure you have already been skilled in driving Robin:

Please practice driving Robin in the open field repeatedly, until you can easily get on, make it go forward or backward, turn, stop and get off.

You can drive Robin in narrow and winding place with practice.

If you are not skilled in driving Robin, please don’t drive Robin to these places where there are children, pedestrians, vehicles or obstacles

When it is your first time to drive Robin, please practice driving it in a spacious and safe place.

Please be careful when getting through doors.

Make sure to keep the wheels enough clearance.

Please note whether the ground is flat or not.

You can drive Robin on different terrain, but you must slow in unfamiliar terrain. Please don’t allow Robin be off the ground at any time.

Robin is a complementary-type transport, which is based on a flat surface. The user should confirm the hands in a vertical state when driving Robin on uneven surface, making it to the direction you want to go by turning the handlebar and allowing the tyres to follow the contours of the road when driving.

8. Driving safety instruction

This section provides some safety knowledge and warning, which can make you understand the safety matters of Driving Robin better. In order to ensure you can drive Robin safely, please make sure that you read through the “product manual” and abide by the relevant safety instructions. Please note all the safety warning and cautions, understanding these safety precautions can improve your safety and pleasure in the driving process.

It may cause some accidents such as losing control ,collision and falling down when you drive Robin at any time. In

order to avoid accidents, you must carefully read and refer to user manual instructions to drive Robin. Please ensure using Robin in good condition, and

Drive Robin after you have known all the content of user manual well.

When you drive Robin, please ensure for the safety measures such as wearing helmet, knee pad, elbow pad.

Robin is only applicable to personal entertainment, forbidden to use as public transportation.

Do not drive a robin in traffic

In order to avoid damaging Robin in the driving process or causing physical injury because of losing control, collision & falling down, please assemble Robin correctly before driving it.

Please don't let children, the elderly, or pregnant woman drive.

Please don't drive Robin after drinking or using any drugs.

Please don't drive Robin while carrying goods, as it may cause loss of control & balance and cause damage.

Please note to abide by the state and the local traffic regulations when driving Robin.

Clench the handlebar tightly, relax your legs, bend your knees slightly, which can make you keep balance when driving on the bumpy ground.

Adjust the handle to the right height, put the centre of your feet on the pads.

Keep certain distance between the handle and your body when driving Robin. Keeping too close will increase the possibilities of losing control, collision and falling down.

Please wear suitable sports clothes to drive Robin, which will help you deal with emergency better.

Robin only can load one person at a time, please don't load two or more persons .

The maximum load of Robin is 120 kg,(about 264 pounds) so please don't

load the weight which is more than 120 kg(including the total weight of the person and the goods),or it will cause the driver fall down or get injured easily in the driving process. Even damage the functions of Robin. And the weight of the driver can't be less than 35 kg (about 77 pounds) ,or it will cause the driver to lose control of Robin, especially it can't slow down or stop safely when driving on downhill terrain.

The driver must confirm the moving speed is in a safe speed limit. Be ready to stop Robin at any time.

Abide by the local traffic rules.

When you are driving Robin with other drivers together, please maintain a safe distance to avoid collision.

Please remember that your body height increased 21 centimeters when driving Robin, so you

must note your head safety when getting through the door.

Please note your body balance when turning, avoiding falling down from Robin because of gravity shift or fast speed.

Please don’t do other things when driving Robin, such as telephoning, listening to music or any other activities, which can affect your observation of your surroundings.

Don’t drive Robin backward at a high speed

Please don’t start Robin when the battery power is over or it shows the minimum safety power system and automatically stops. If you still start Robin again, you will fall down from it because the battery power shortages cause loss of balance.

Please don’t let go when Robin is in equilibrium pattern .Because this action will make Robin automatically forward for some distance, which may hurt others beside you or damage Robin.

Don’t let children drive Robin. Usually we recommend the teenagers who are more than 16 years old can drive Robin.

This personal transport tool Robin is not designed or tested to prove it can be medical treatment equipment.

Don’t drive Robin in a dark place.

Please avoid driving Robin on slick ground, which can cause danger such as falling down because of losing balance.

Please avoid driving Robin on the slippy ground ,for example,

Snow, the iced surfaces or wet and slippery floor, etc.

Please avoid driving Robin on the sporadic objects surface like twigs, garbage or small stone surfaces etc.

Please avoid driving Robin in the narrow places.

Please drive Robin in the permitted environment.

Please don’t start or stop Robin suddenly.

Please don’t drive Robin on the abrupt slopes.

Robin is not designed or recommended for driving on the roads as maneuvering traffic tools, please abide by the local traffic rules.

Driving Robin in an unsafe environment is banned. These unsafe environment means where there is fire accident or explosion, etc.

9. Repair and maintenance

The user needs to give Robin daily maintenance. This section is mainly about how to maintain Robin.

WARNING!

- **Please ensure the power and charging cable is disconnected before carrying out the following operation. It is dangerous when the power is open & the battery is charging.**

9.1 Carrying Robin

Put up & down Robin in the right way. If you want to carry Robin, please follow the steps as below:

Make sure that Robin is disconnected to charger and turned off.

Clench Robin's pole root with one hand, then raise it with the other hand. Don't clench the plastic shell as stress point to carry Robin.

9.2 Wheels maintenance

Regularly and observe whether the tyre components shake or not: if they shake, please check the screws in the tyre components installation area and screw them tightly.

Regularly check whether the left and right wires wear badly or not, whether they wear uniformly or not.

If the wires wear badly, please contact the after-sale service department for replacement.

9.3 Cleaning

Please note these matters before cleaning:

Make sure Robin's power is disconnected to charging line

Please wipe Robin's shell with soft cloth for cleaning.

WARNING!

Please avoid using water or other liquids to clean Robin. If the water and the other liquids seep into Robin, it will make Robin's internal electronic components produce permanent damage.

9.4 Storage

Please store Robin in the indoor, dry and appropriate temperature place. If you won't use Robin for a long time, please don't connect to the power. Because the battery will wear down with time

WARNING!

Please don't take apart the cover and the internal control circuit board, which are not the components that users can repair, otherwise Robin will be damaged or in an unsafe condition.

Please don't open the gear box, which is not included in the components that users can repair, If the user open the gear box it will void the warranty

10. Technical Parameters:

Model NO	**Robin**-M1	remarks
Net weight	18.5kg	
Minimum load	35kg	
Maximum load	100kg	
Cruise speed	0-15km/h	
Distance(after single charging)	20km	
Minimum turning radius	0	
Power source	Lithium battery (made by BYD)	
Charging requirement	100-240 volt 50 -60 hertz	For global
Battery weight	3.4kg	
Length, width	46.7cmX46.4cm	
Handle height	115cm	Count from the pads
Handle height	140cm	Count from the ground, not loading
Chassis height	21.2cm	Not loading
tyre	Solid, lotus root-shaped	Not inflated tyres
battery	Li –battery,48volt, 8Ah	

11.Fault handling

Self-checking projects: the sensors, system static electricity, the system dynamic electricity, motor speed fluctuation etc.

If you can't solve the fault by self-checking, please contact with our service network for repairing.

NOTE:

About the information of the repair station, please visit our website: www.robotsz.com or call the hotline in China: 86-755-83285153.

We hope you enjoy Robin

If there is something wrong when using, firstly please recheck with "User Manual". If the problem can't be still solved, please login in our website: www.robotsz.com or call the hotline in China: **86-755-83285153.**

Robstep Robot Co., LTD. hopes you enjoy Robin .

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